Christopher Newport University

2019 Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management

PREPARED FOR

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Letter of Endorsement

Subject: Christopher Newport University Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management.

Dated: December 2019

I certify under penalty of law that all documents and all attachments related to the submission and updating of the Christopher Newport University Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management have been prepared under my direction or supervision in a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of a fine and imprisonment for knowing violations.

Sincerely,

M. Christine Ledford

Senior Associate Vice President for Administration and Finance

Introduction

Christopher Newport University (CNU) has incorporated Annual Standards and Specifications for Erosion and Sediment Control (ESC) and Stormwater Management (SWM) that are integral components of Christopher Newport University's design, construction, maintenance, and management of the University's facilities and campuses. The Christopher Newport University Annual Standards and Specifications for ESC and SWM submittal has been developed to provide information regarding CNU's implementation in accordance with the Virginia Erosion and Sediment Control Law (§62.1-44 et. seq.), the Virginia Erosion and Sediment Control Regulations (9VAC25-840 et. seq.), the Virginia Erosion and Sediment Control Certification Regulations (9VAC25-850 et. seq.), the Virginia Stormwater Management Act (§62.1-44 et. seq.), and the Virginia Stormwater Management Program (VSMP) Permit Regulations (9VAC25-870 et. seq.) as related to municipal separate storm sewer systems (MS4) and regulated construction activities.

Christopher Newport University Annual Standards and Specifications for ESC and SWM shall be administered by the University Architect's Office, Grounds Department, or Facilities Management department depending on the type of project. The Annual Standards and Specifications shall apply to all design, construction and maintenance activities undertaken by Christopher Newport

University on projects owned by Christopher Newport University, either by its internal workforce or contracted to external entities, where such activities are regulated by the Virginia ESC Law and Regulations or the Virginia SWM Act and VSMP Permit Regulations. During any inspections of Christopher Newport University's land disturbing activities by DEQ, EPA or other such environmental agencies, compliance with the approved Christopher Newport University Annual Standards and Specifications for ESC and SWM (and all parts thereof), the Virginia ESC Law and Regulations, the Virginia SWM Act and the VSMP Permit Regulations will be expected.

Christopher Newport University Annual Standards and Specifications for ESC and SWM are submitted to the Virginia Department of Environmental Quality (DEQ) for review and approval on an annual basis, per 9VAC25-870-170 and §62.1-44.15:55D, or as determined by the DEQ. Christopher Newport University shall ensure that project specific plans are developed and implemented in accordance with these Annual Standards and Specifications.

This submittal constitutes Christopher Newport University's commitment to execute all provisions contained herein on regulated land disturbing activities and land development projects. As such, this submittal will be made available and utilized as an operational guidance document for Christopher Newport University projects.

While the Department of Environmental Quality, or Board, will remain the ESC and VSMP Authority, CNU will fulfill the role of AS&S holder in order to implement all aspects of the program except for the following items:

- Construction General Permit registration statement review and acceptance. (9VAC25-880-50)
- Construction General Permit issuance.
- Construction General Permit enforcement.
- Construction General Permit Notice of Termination (9VAC25-880-60)
- Acceptance of variances and exceptions.

Acronyms and Abbreviations

AFG	Architect, Facilities, or Grounds
Bay	Chesapeake Bay
BMP	Best Management Practice
Board	Virginia Soil & Water Conservation Board
CNU	Christopher Newport University
CWA	Clean Water Act
CSS	Combined Sewer System
DCR	Department of Conservation and Recreation
DEQ	Department of Environmental Quality
EOR	Engineer of Record
EPA	Environmental Protection Agency
ERP	Enforcement Response Plan
ESC	Erosion & Sediment Control
FM	Facilities Management
GIS	Geographic Information Systems
GPS	Global Positioning System
HUC	Hydrologic Unit Code
IDDE	Illicit Discharge Detection & Elimination
LID	Low Impact Development
MEP	Maximum Extent Practicable
MCM	Minimum Control Measure
MS	Minimum Standard
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollution Discharge Elimination System
NOI	Notice of Intent
NOV	Notice of Violation
POC	Pollutants of Concern
RLD	Responsible Land Disturber
SOP	Standard Operating Procedures
SWM	Stormwater Management
SWPPP	Stormwater Pollution Protection Plan
TMDL	Total Maximum Daily Load
UA	Urbanized Area
VESCL&R	Virginia Erosion & Sediment Control Law & Regulations
VPDES	Virginia Pollution Discharge Elimination System
VRRM	Virginia Runoff Reduction Method
VSMP	Virginia Stormwater Management Program
VSMPGCP	Virginia Stormwater Management Program General Construction Permit
WLA	Waste Load Allocation

Section 1: Annual Standards and Specifications Administration

All projects involving land-disturbing activity subject to the Virginia Erosion and Sediment Control Law (§62.1- 44 et seq. as amended), the Virginia Erosion and Sediment Control Regulations (9VAC25-840 et seq. as amended), and the Virginia Erosion and Sediment Control Certification Regulations (9VAC25-850 et seq. as amended) and the Virginia Stormwater Management Act (62.1-44. et seq.) and the VSMP Regulations (9VAC25-870 et. seq. as amended) shall be bound by the CNU Annual Standards and Specifications for ESC and SWM.

1.1. CNU Annual Standards and Specifications for ESC & SWM approved by DEQ are composed of general specifications. The general specifications for ESC and SWM that apply to the land-disturbing activities, include by reference the following:

- *Virginia Erosion and Sediment Control Law* (§62.1-44 et seq. as amended);
- *Virginia Erosion and Sediment Control Regulations* (9VAC25-840 et seq. as amended);
- *Virginia Erosion and Sediment Control and Stormwater Management Certification Regulations* (9VAC25- 850 et seq. as amended);
- *Virginia Erosion and Sediment Control Handbook*, 1992, as amended;
- *Virginia Stormwater Management Act* (§62.1-44 et seq. as amended);
- *Virginia Stormwater Management Permit Regulations* (9VAC25-870 et seq. as amended);
- *Virginia Stormwater Management Handbook*, 1999, as amended;
- *Virginia Stormwater Construction General Permit Regulations* (9VAC25-880 et seq. as amended);
- *Virginia Stormwater BMP Clearinghouse* at https://www.swbmp.vwrrc.vt.edu/
- Technical Bulletins, as amended, on the Virginia DEQ website at www.deq.virginia.gov
- Memos, as amended, on the Virginia DEQ website at www.deq.virginia.gov.

1.2. In accordance with 9VAC25-870-170, individual stormwater and ESC plans, to the maximum extent practicable, shall comply with any locality's VSMP authority's technical requirements adopted pursuant to the Act. It shall be the responsibility of the state agency to demonstrate that the locality's VSMP authority's technical requirements are not practicable for the project under consideration.

1.3. Any land-disturbing work, as defined by VESCL&R, must be vetted through AFG offices. Prior to starting a land-disturbing project, the project must have plans stamped and approved by the EOR.

1.4. Site specific ESC plans shall be prepared for all projects involving a regulated land-disturbing activity greater than or equal to 10,000 square feet disturbed area, 2,500

square feet in all areas designated as Chesapeake Bay Act Preservation Areas, or when deemed necessary by an EOR if development is outside the purview of the VESCL&R and poses potential environmental implications. Site specific ESC plans shall be submitted to EOR for review. Prior to starting a land-disturbing project, the project must have plans stamped approved by EOR. In addition, if the addition of impervious surfaces is part of the scope, a SWM narrative and/or schematic must be submitted concurrently to explain/show how the run-off will be treated.

1.5. Site specific SWM plans shall be prepared for all projects involving a land-disturbing activity of 10,000 square feet or more and/or that requires:

a. A Virginia Stormwater Management Program General Permit for Discharges from Construction Activities (VSMPGP)
b. Land-disturbing activity contained within a watershed of a regional water quality Stormwater management facility
c. Incorporates the use of a LID and/or BMP
d. Changes the University MS4

Site specific SWM plans shall be submitted to an AFG office or EOR for review. Prior to starting a land-disturbing project requiring a SWM plan, the project must have an approval issued by a qualified AFG representative or EOR and proof a state permit coverage.

Please note that the Chesapeake Bay Preservation Areas land disturbance threshold is greater than or equal to 2,500 square feet.

1.6. An AFG representative or EOR may request DEQ to grant project specific variance or exception, in terms of ESC and SWM, respectively, to the approved Christopher Newport University Annual Standards and Specifications for ESC and SWM. All requested variances and exceptions are to be considered unapproved until written approval from DEQ is received. Refer to Section 6 for more information on variances and exceptions.

1.7. The University Architect's office will only be responsible for capital construction projects. These projects will have an Engineer of Record (EOR) and a Certified Land Disturber (CLD) who will monitor and report on all requirements of the Annual Standards and Specifications that apply to capital construction project.

Section 2: Annual Standards and Specifications Personnel

AFG shall be the authority for Christopher Newport University projects. The following is a breakdown in responsibilities and titles regarding the Christopher Newport University Annual Standards and Specifications for ESC and SWM. Responsibilities may be combined in terms of staffing resources only if the person responsible for the task(s) is qualified per Section 1.1.3. The Director of Grounds or qualified CNU personnel shall be the program administrator. CNU may enter into agreements or contracts with soil and water conservation districts, adjacent localities, or other public or private entities to assist with carrying out the provisions of this article, including the review and determination of adequacy of erosion and sediment control plans submitted for land-disturbing activities on a unit or units of land as well as for monitoring, reports, inspections, and enforcement where authorized in this article, of such land-disturbing activities. The following titles are designated to ensure compliance with erosion and sediment control and stormwater management regulations on all Christopher Newport University projects.

2.1. "Certified ESC Inspector" means an employee or agent of Christopher Newport University who: (i) holds a certificate of competence from the Board in the area of project inspection; or, (ii) is enrolled in the Board's training program for project inspection and successfully completes such program within one year after enrollment; and (iii) shall be responsible to inspect as mandated by the VESCL&R erosion and sediment control measures to ensure proper installation in accordance with the approved plan and record the state and effectiveness of such measures in an effort to minimize site erosion and sediment control.

2.2. "Certified SWM Inspector" means an employee or agent of Christopher Newport University who: (i) holds a certificate of competence from the Board in the classification of project inspector in the area of SWM; or, (ii) is enrolled in the Board's training program for project inspector and successfully completes such program within one year after enrollment; and, (iii) shall be responsible to inspect construction sites for SWPPP compliance.

2.3. "Certified ESC Plan Reviewer" means an employee or agent of Christopher Newport University who: (i) holds a certificate of competence from the Board in the area of plan review; (ii) is enrolled in the Board's training program for plan review and successfully completes such program within one year after enrollment; or (iii) is licensed as a professional engineer, architect, certified landscape architect, or land surveyor pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia; or (iv) is a professional soil scientist as defined in Chapter 22 (§ 54.1-2200 et seq.) of Title 54.1 of the Code of Virginia.

2.4. "Certified SWM Plan Reviewer" means an employee or agent of Christopher Newport University who: (i) holds a certificate of competence from the Board in the classification of plan reviewer in the area of SWM; or, (ii) is enrolled in the Board's training program for plan reviewer and successfully completes such

program within one year after enrollment.

2.5. "Certified ESC Program Administrator" means an employee or agent of Christopher Newport University who: (i) holds a certificate of competence from the Board in the area of program administration; or, (ii) is enrolled in the Board's training program for program administration and successfully completes such program within one year after enrollment.

2.6. "Certified SWM Program Administrator" means an employee or agent of Christopher Newport University who: (i) holds a certificate of competence from the Board in the classification of program administration in the area of SWM; or, (ii) is enrolled in the Board's training program for program administration and successfully completes such program within one year after enrollment.

2.7. "Certified ESC Combined Administrator" means an employee or agent of Christopher Newport University who: (i) holds a certificate of competence from the Board in the area of program administration, plan review and project inspection; or, (ii) is enrolled in the Board's training program for program administration, plan review and project inspection and successfully completes such program within one year after enrollment.

2.8. "Certified SWM Combined Administrator" means an employee or agent of Christopher Newport University who: (i) holds a certificate of competence from the Board in the classification of program administration, plan reviewer and project inspector in the area of SWM; or, (ii) is enrolled in the Board's training program for program administration, plan reviewer, and project inspector and successfully completes such program within one year after enrollment.

Please note that any person who holds a valid and unexpired certificate of competence issued by the board in the classification of ESC or SWM, or who obtains such a certificate, and who later successfully obtains an additional certificate may surrender both certificates of competence to the board and request in writing issuance of a dual certificate showing certification in both classifications. Such a request must be made while both the ESC and SWM certificates of competence obtained are valid and unexpired.

Section 3: Annual Standards and Specifications Implementation

A qualified AFG or EOR representative shall be considered the plan approving authority for ESC and SWM. ESC and SWM plans shall comply with Christopher Newport University Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management, the Virginia Erosion and Sediment Control Law (62.1-44 et, seq,), the Virginia Stormwater Management Act (62.1-44 et. Seq.), associated ESC and SWM regulations, and the Virginia Stormwater Management Program Permit regulations (9VAC25-870 et. Seq.). Refer to Section 1.1 for more information on general specifications.

The use of the VESCH, along with the accompanying technical documents and guidance, control measures is strongly preferred. Non-VESCH control measures, BMPs, and specifications may be included in the AS&S submittal, but their use may be further reviewed and approved by the applicable DEQ Regional Office on a project-specific basis.

3.1. Submittals: Two complete sets of ESC/SWM plans, narratives and necessary attachments shall be submitted to one of the AFG offices or EOR for review and approval prior to any land-disturbing activities. A qualified AFG representative or EOR shall have 30 days to review the plan and provide written comments. Re-submittals shall include revision notes referenced to written comments. Prior to commencement of any land-disturbing activities, the project must have received plan approval from a qualified AFG representative.

When non-VESCH control measures are used, all applicable practical information including definition, purpose, conditions where practice applies, planning considerations, design criteria, construction specifications, design tables and plates, and maintenance and inspections shall be included in the ESC Plan. Non-VESCH and proprietary control measures shall be installed per the manufacturer's instructions and with the intent of the VESCH specifications. Should non-VESCH control measures fail to effectively control soil erosion, sediment deposition, and non-agricultural runoff, then VESCH control measures shall be utilized.

Projects requiring a CGP must submit a complete and accurate Registration Statement, Fee Form, and the AS&S Entity Information form (presented in Appendix F) to AFG office. CNU will submit the completed application package to DEQ for issuance of the CGP. CNU will submit a notice of termination to the DEQ upon completion of the project. Refer to section 5.3 for additional information concerning project close out procedures.

The DEQ shall be notified of any material changes which may impact the Registration Statement, Fee Form, AS&S Entity Information form and/or permit coverage. Notification of changes may be sent via email to: constructionGP@deq.virginia.gov

3.2. Plan Reviews: Plan reviews shall be conducted by qualified personnel as defined in section 2. When approved, at least five complete sets must be submitted to be stamped approved by a qualified AFG office or EOR for ESC/SWM. These plan sets will be allocated as follows: (1) EOR, (2) Contractor, (2) appropriate AFG office representative.

3.3. Delegation of Authority: In accordance with the General VPDES Permit for Discharges of Stormwater from Construction Activities the individuals or positions with delegated authority to sign inspection reports and/or amend the SWPPP must be identified. If the individual or position identified on the Title Sheet of the SWPPP changes or additional individuals or positions are given this responsibility after the preconstruction meeting occurs, the changes/additions must be noted below and submitted to the Authority.

3.4. Pre-Construction Conference: Prior to commencement of a land disturbance, a pre-construction conference shall be held in order to clarify ESC/SWM roles, responsibilities and obligations of all parties involved with the land- disturbing activity. At a minimum, the pre-construction conference will be attended a qualified representative from one of the AFG offices, EOR, and Contractor Project Manager or Superintendent. by the CNU Project Manager, CNU Construction Inspector, CNU Stormwater Coordinator and the project RLD.

3.5. Inspections: Site inspections shall be conducted by qualified personnel as defined in section 2.

3.6. Enforcement: A qualified AFG representative or EOR shall be responsible for ensuring that corrective action is taken in response to comments and violations listed on inspection reports. In the event that the project manager is unable to get the contractor to comply with requests, documentation will be forwarded to the Director of AFG for further enforcement action as deemed appropriate. This could include notifying the DEQ of project non-compliance for further enforcement and possible fines.

3.7. Changes and Amendments to Approved Plans: If modifications exceed the limitation of a BMP, need revised calculations, or if the inspector requests the change, amendments to approved plans must be reviewed and approved by a qualified AFG representative or EOR Red lines must be checked and signed off by the DEQ-Certified Inspectors and if such modifications require submittal to the Certified ESC and SWM Plan Reviewer they must be reviewed and reapproved. Revisions shall not be considered approved until written notice is provided. The project SWPPP will need to be updated with approved changes and amendments. If a change will increase the land disturbance to a higher permit fee, the difference in fees will be paid to the DEQ.

Section 4: Plan Review and Approval

Detailed requirements of specific items to be included in the ESC and SWM plans are in the ESC/SWM Plan Prepared/Reviewer Checklist (Appendix A) and General Erosion and Sediment Control Notes (Appendix B).

4.1. Construction Plans

a. Complete ESC and SWM plans shall be provided in the construction plans.
b. Plans shall include the amount of disturbed area listed per phase and proposed net increase in impervious area.
c. Minimum Standards 1 through 19 (9VAC25-840-40) shall be listed in the construction plans.
d. Construction sequence of operations shall be provided on the construction plans with staged implementation of erosion and sediment control measures for each phase. The area which may be disturbed in each phase shall be set forth in the construction plans.
e. Plans shall provide information on the maintenance of BMPs or reference the narrative section that contains the information.
f. Profiles shall be included for all closed and open storm systems. The profile shall include the existing surface, final surface, proposed water elevations, pipes, pipe crossings, and hydraulic grade line. Surcharges shall be clearly indicated on the profile.
g. SWM calculations include but are not limited to: ditch computations, stormwater routing, storm inlet computations, pipe capacity computations, BMP computations, pond routings and computations, etc.
h. Proof of adequate outfall and adequacy of the receiving channel to the SWM treatment facility needs to be provided.
i. Plans shall comply, to the maximum extent practicable, with any locality's VSMP ESC and SWM technical requirements or demonstrate that the locality's VSMP ESC and SWM technical requirements are not practicable for the project.
j. Stockpile/lay-down areas and trailer locations shall be provided on the erosion and sediment control plans for all phases.
   Any on-site changes shall be documented on the approved site plan and within the SWPPP.

4.2. Once the plan and supporting documentation are deemed adequate the AS&S DEQ-Certified Program Administrator will:

a. Stamp the plans and calculations.
b. Forward an approval letter to the project manager and EOR.
c. Review the SWPPP if a general construction permit is required.

Section 5: Inspections

Periodic inspections shall be conducted as required by state law by CNU for ESC and SWM via DEQ-Certified ESC and SWM Inspectors. Periodic inspections shall be conducted, at a minimum, at least once in very two-week period and within 48 hours following any runoff producing storm event. Inspectors shall be notified 24 hours prior to installation of BMPs and shall be present for installation of BMPs. In addition, inspections shall be made during or immediately following initial installation of erosion and sediment controls and at the completion of the project. Completion of the project will only be considered after establishment of permanent stabilization, not completion of construction.

5.1 Erosion and Sediment Control Inspections: Construction sites shall be inspected by a DEQ-Certified ESC Inspector during or immediately following initial installation of erosion and sediment controls, at least once in every two-week period, within 48 hours following any runoff producing event, and at the completion of the project prior to the release of any performance bonds.. The ESC/SWM Inspection Report form provided in Appendix C shall be used on each site inspection visit. All measures shown on the plan shall be inspected. All issues and violations shall be photographed and documented in the report. Critical areas that require continuous inspections shall also be identified on the site plan. The inspection report shall specify the required corrective action for each issue or violation noted and a date by which all corrective actions must be completed. A copy of the ESC/SWM Inspection Report will be emailed to the CNU project manager and any other persons identified during the pre-construction meeting.

5.2 Stormwater Management Inspections: DEQ-Certified SWM Inspectors shall provide for the inspections of the installation of stormwater management measures. SWPPPs (General information, ESC plan, SWM plan, pollution prevention plan, TMDL requirements) shall be inspected at the beginning of the project and monthly during construction. Projects should be inspected to ensure that they have obtained CGP permit coverage, if appropriate.. The ESC/SWM Inspection Report form provided in Appendix C will also be used to record SWM inspections and shall be filled out on each site inspection. All stormwater BMPs must be identified on the site plan. All measures shown on the plan shall be inspected. All issues and violations shall be photographed and documented in the report. Critical areas that require continuous inspections shall also be identified on the site plan. The inspection report shall specify the required corrective action for each issue or violation noted and a date by which all corrective actions must be completed. A copy of the ESC/SWM Inspection Report will be emailed to those identified during the pre-construction meeting.

5.3 Project Close-Out: Project completion is defined as the achievement of permanent stabilization, verification of final product according to approved plans, completion

of TV inspection of the installed storm sewer system and receipt of as-built certification of SWM BMPs (if applicable). Project completion, concerning ESC and SWM, will be noted using the ESC/SWM Inspection Report form. A notice of termination will be submitted to DEQ in accordance with 9VAC25-880-60.

5.4 Post-Construction Inspections: Post-construction (maintenance) inspections for permanent SWM BMPs shall be made on an annual basis and in accordance with the manufacturer's recommendations, engineer's recommendations, and/or stormwater regulation requirements. At a minimum, a stormwater management facility shall be inspected by CNU on an annual basis and after any storm which causes the capacity of the facility principal spillway to be exceeded. The BMP Field Assessment Worksheet provided in Appendix D shall be used during inspections. In the case where maintenance or repair is required, fund requests and/or work orders shall be made in order to have items corrected.

5.5 Violations and Documentation: Violations shall be documented in the ESC/SWM Inspection Report, including photographs, descriptions, and necessary corrective actions. If a violation continues to be repeated, then a Notice to Comply will be issued and DEQ notified. At the discretion of a qualified AFG representative, the land disturbance approval may be suspended and/or revoked; at which time all land disturbing activity must cease until corrective actions have been completed. Alternatively, a qualified AFG has the option to contract with a 3rd party to install and maintain ESC and/or SWM measures in accordance with the approved plan, complete any necessary corrective actions, and/or abate any related damages. Once the site is brought back into compliance to the satisfaction of a qualified AFG representative, site work may resume. All associated costs to bring site into compliance will be the responsibility of the contractor.

Section 6: Variances and Exceptions

Variances and exceptions to regulations must ensure protection of off-site properties and resources from damage. Economic hardship is not sufficient reason to request a variance or an exception from VESCL&R or Christopher Newport University Annual Specifications for ESC and SWM. Variances and exceptions are considered to be project specific.

For a variance or exception to become part of the project ESC and SWM plans, a written request must be submitted to the AFG office, or EOR, for a cursory review. If acceptable, the request will then be forwarded to the DEQ Central Office for final review and approval. This request must include an explanation and description of the specific condition necessitating the request. The request must also include a detailed description of the alternative practice and justification that the practice meets the intent of the regulation for which the variance or exception is sought. (Ref. 9VAC25-840-50).

6.1. Variance or Exception Request Policy and Procedure:

a. The design professional shall draft a letter of request to AFG office or EOR and shall be accompanied by complete details and documentation, including justification and impacts associated with the request.
b. A cursory review will be completed by CNU AFG or EOR to ensure the request is complete and then will forward to the DEQ Central Office.
c. All requests shall be considered unapproved until written approval from AFG office or EOR DEQ is received. CNU may, at DEQ's discretion, be required to produce documentation to demonstrate the applicability of variance requests. Final approval rests with DEQ.
d. All approved variances or exceptions shall be included as part of the site plan. Listed in the General notes section of the ESC/SWM plans for land disturbing activities and in included in the Narrative.

Section 7: Land-Disturbing Activities

Land-disturbing activities that obtain an initial state permit or commence land disturbance prior to July 1, 2014, shall be conducted in accordance with the Part II C (9VAC25-870-93 et seq.) technical criteria. Such projects shall remain subject to the Part II C technical criteria for two additional state permit cycles. After such time, portions of the project not under construction shall become subject to any new technical criteria adopted by the board (9VAC25-870-47 B).

Land-disturbing activities that obtain an initial state permit on or after July 1, 2014, shall be conducted in accordance with the Part II B (9VAC25-870-62 et seq.) technical criteria, except as provided for in 9VAC24-870-48. Land-disturbing activities conducted in accordance with the Part IIB technical criteria shall remain subject to the Part IIB technical criteria for two additional state permit cycles. After such time, portions of the project not under construction shall become subject to any new technical criteria adopted by the board (9VAC25-870-47 B).

Grandfathered land-disturbing activities shall be subject to the Part II C technical criteria (9VAC25-870- 93 et sag.). Land-disturbing activities will be considered grandfathered if they meet the conditions of 9VAC25-870-48. Grandfathered land disturbing activities shall be subject to Part II C technical criteria for one additional state permit cycle. After such time, portions of the project not under construction shall become subject to any new technical criteria adopted by the board (9VAC25-870-48 C).

The required phosphorous nutrient reductions may be allowed in accordance with the criteria set forth in VAC25-870-69 “Offsite compliance options". Qualified projects must meet any of the following conditions:

a. Be below 5-acres of disturbed land
b. The post-construction phosphorous reduction is less than 10 pounds
c. At least 75 % of the required reduction can be achieved on site
d. If at least 75 % reduction cannot be achieved onsite and the operator can demonstrate that:
    - Alternative site designs have been considered that may accommodate on-site BMPs
    - On-site BMPs have been considered in alternative site designs to the maximum extent practicable
    - Appropriate on-site BMPs will be implemented
    - Full compliance with post development non-point nutrient runoff compliance requirements cannot practicably be met on-site.

7.1 Proposed Land-disturbing activities: A list of regulated land-disturbing activities

expected to be under contract during the referenced time period is included in Appendix E. The list includes project location, estimated disturbed acreage by watershed, and approximate start and completion dates for each project.

7.2 Current and Pact Land-disturbing activities: A list of completed and on-going regulated land-disturbing activities either under contract or terminated during the previously referenced time period are included in Appendix E. The list includes project location, project start and completion date, and actual disturbed area.

7.3 Project Tracking and Notification: CNU will provide an annual tracking report to DEQ identifying project name, location, on-site project manager (with contact information), project description, project status (design or construction), estimated disturbed acreage, start and finish dates, applicable DEQ-Certified RLD information, dates of inspections, and any variances/exemptions/waivers associated with the project. CNU will provide the annual report by July 1st of each year. E-notifications and project tracking should be emailed to Standardsandspecs@deq.virginia.gov.

DEQ e-notifications shall be made 2 weeks prior to initiating a regulated land disturbing activity.

Section 8: Construction Requirements

All contractors performing land disturbing activities on campus property are required through contract documents to follow existing ESC requirements and obtain all applicable permits before construction activity commences. The CO-7 General Conditions of the Construction Contract requires that the contractor have a DEQ-certified responsible land disturber on- site. In addition to contract language, all work performed on University property is required to comply with the Construction and Professional Services Manual (CPSM) published by the Bureau of Capital Outlay Management and CNU's Design and Construction Guidelines.

8.1 DEQ'S Responsibilities: DEQ shall have sixty days in which to comment on any ESC standards and specifications submitted to it for review, and its comments shall be binding on CNU and any private business hired by CNU (§62.1- 44.15:55. B).

a. Enforcement by the DEQ for SWM will be in accordance with §62.1-44.15:27 F. Enforcement shall be administered by the Department and the Board where applicable in accordance with the provisions of this article. Enforcement by the DEQ for ESC will be in accordance with §62.1-44.15:54.E and §62.1- 44.15:56G. The Department and the Board, where applicable, shall provide project oversight and enforcement as necessary and comprehensive program compliance review and evaluation. The Department may take enforcement actions in accordance with this article and related regulations.

b. In accordance with §62.1-44.15:31.C, the Department shall perform random site inspections or inspections in response to a complaint to assure compliance with this article, the ESC law, and regulations adopted thereunder.

c. DEQ fees for services rendered for SWM will be in accordance with §62.1-44.15:31.D. ESC fees, in accordance with §62.1-44.15:55.D, to enforce approved specifications will be equal to the lower of (i) $1,000 or (ii) an amount sufficient to cover the costs associated with standard and specification review and approval, project inspections, and compliance.

8.2 CNU'S responsibilities pertaining to construction requirements shall include:

a. CNU shall ensure compliance with the approved plans and annual standards and specifications (§62.1-44.15:56.G).

b. Upon request by the DEQ, CNU shall provide a copy of the approved plan sheets and narrative for each regulated land-disturbing activity as outlined in Section 1.1.

c. CNU will notify DEQ of the Responsible Land Disturber including RLD name, certification number and contact information at least 2 weeks prior to construction.

d. CNU will notify DEQ of any newly emerging projects involving regulated land-disturbing activities during the current year as soon as they are known and prior to any land-disturbance.

e. CNU shall provide DEQ with the appropriate information, in a timely manner, when requested, including:

- Inspection Reports
- Complaint Logs
- Complaint Responses

f. Weekly e-Reporting to the DEQ — Tidewater Regional Office, if required, will include:

- Inspection reports
- Pictures
- Complaint logs and complaint responses
- Other compliance documents

Section 9: Long Term Maintenance

Project plans shall contain information on the long-term maintenance requirements for the post- construction BMPs. The BMPs will be consistent with the Virginia Stormwater BMP clearing house and sections 9VAC25-870-112 and 200.B. Permanent stormwater facilities shall be inspected on an annual basis and after any storm which causes the capacity of the facility principal spillway to be exceeded and random inspections will be made during construction of the facilities. CNU shall maintain, either onsite or in AS&S files, a copy of the approval plan and a record of inspections for each active land disturbing activity. The following information will be printed on the approved stormwater management plan:

- A description of the requirements for maintenance and maintenance inspection of the stormwater management facilities and a recommended schedule of maintenance inspection and maintenance.

- The identification of a person or persons who will be responsible for maintenance inspection and maintenance.

- The maintenance inspection schedule and maintenance requirements should be in accordance with the Virginia BMP Clearinghouse, the Virginia SWM Handbook, the MS4 permit (if applicable) and/or the manufacturer's specifications.

- The types of land cover on the site will be clearly depicted (i.e. different type of hatching for each land cover), including the acreage for each cover type. The acreage should be labeled in all of the subareas and provide a table that adds the land cover up by type on the sheet.

- The metes and bounds will be drawn all the way around any conserved open space.

- Any conserved open space will be labelled as "Runoff Reduction Compliance Forest / Open Space"

- The following note will be included on the sheet: "The Runoff Reduction Compliance Forest/Open Space area shown here shall be maintained in a forest/open space manner until such time that an amended storm water management plan is approved by the VSMP Authority."

9.1 CNU Roles and Responsibilities

CNU Certified SWM Program Administrator shall ensure BMPs are scheduled for annual inspection, beginning on their first anniversary based on the date of Notice of Termination for the subject Construction General Permit, or as otherwise indicated in section 5 of this

document. The CNU SWM Program Administrator will provide pertinent BMP information to CNU's MS4 Coordinator.

a) CNU Certified SWM Project Inspector will conduct annual post construction inspections or inspections as indicated in section 5 of this document of BMPs and report results to the CNU Certified SWM Program Administrator. The post construction inspections will be conducted in accordance with the maintenance requirements laid out in the Virginia Stormwater BMP clearing house for each BMP. Copies of BMP inspection reports will be maintained for five (5) years.

b) CNU Facilities Services will be responsible for committing the necessary resources to maintain BMPs and correct deficiencies noted during these inspections.

c) CNU shall, on a fiscal year basis (July 1 to June 30), submit a Report to the DEQ by October 1 of each year, as prescribed in 9VAC25-870-126. The information provided shall include the following:
    a. Information on each permanent stormwater management facility completed during the fiscal year to include type of stormwater management facility, geographic coordinates, acres treated, and the surface waters or karst feature into which the stormwater management facility will discharge
    b. Number and type of enforcement actions during the fiscal year
    c. Number of exceptions granted during the fiscal year.
d) CNU shall keep records in accordance with 9VAC25-870-126 B, as follows:
    - Project Records — including approved SWM plans, shall be kept for 3 years after state permit termination or project completion.
    - SWM facility inspection records shall be documented and retained for at least five years from the date on inspection.
    - Construction record drawings shall be maintained in perpetuity or until a SWM facility is removed.

All registration statements submitted in accordance with 9VAC25-870-59 shall be documented and retained for at least three years from the date of project completion or state permit terminations.

Appendix A: ESC/SWM Plan Submitter's Checklist

ESC/SWM Plan Preparer/Reviewer Checklist

The Erosion and Sediment Control (ESC) Plan consists of the Narrative (including any supporting calculations) and the construction sheets (site plan), as noted below.

SECTION 1: General

_____ **1.1 Complete Set of Plans and Supporting Documentation**- Include all sheets pertaining to the site grading and stormwater and any activities impacting erosion and sediment control and drainage:

- □ Existing Conditions
- □ Demolition
- □ Site Grading
- □ Erosion and Sediment Control
- □ Storm sewer systems
- □ Stormwater management facilities
- □ Landscaping
- □ On-site and off-site borrow and disposal areas that do not have separate approved ESC Plans
- □ Calculations

_____ **1.2 Professional's Seal** – The designer's original seal, signature, and date are required on the cover sheet of each Narrative and each set of Plan Sheets. A facsimile is acceptable for subsequent Plan Sheets.

_____ **1.3 Number of Plan Sets**– Two sets of ESC Plans are to be submitted to one of the AFG offices or EOR. Five sets are required for approval. Distribution of the approved plans will be as follows:

2 – Contractor

1 – EOR

2 – AFG Office

_____ **1.4 Variances** – Variances requested at the time of plan submission are governed by Section 9VAC25-840-50 of the Virginia Erosion and Sediment Control Regulations and Christopher Newport University Annual Standards and Specifications for ESC and SWM.

_____ **1.5 Completed Plan Preparer/Reviewer Checklist** – Include a completed and signed ESC Plan Preparer/Reviewer Checklist.

SECTION 2: ESC MINIMUM STANDARDS

Yes	No	NA		
[]	[]	[]	MS-1	Have temporary and permanent stabilization been addressed in the narrative?
[]	[]	[]		Are practices shown on the plan?
[]	[]	[]		Temporary and permanent seed specifications?
[]	[]	[]		Lime and fertilizer?
[]	[]	[]		Mulching?
[]	[]	[]		Blankets/Matting?
[]	[]	[]		Pavement/Construction Road Stabilization?
[]	[]	[]	MS-2	Has stabilization of soil stockpiles, borrow areas, and disposal areas been addressed in the on the plan?
[]	[]	[]		Have sediment trapping measures been provided?
[]	[]	[]	MS-3	Has the establishment and maintenance of permanent vegetative stabilization been addressed?
[]	[]	[]	MS-4	Does the plan specifically state that sediment-trapping facilities shall be constructed as a first step in land-disturbing activities?
[]	[]	[]	MS-5	Does the plan specifically state that stabilization of earthen structures is required immediately after installation? Is this noted for each measure on the plan?
[]	[]	[]	MS-6	Are sediment traps and sediment basins specified where needed and designed to the standard specification?
[]	[]	[]	MS-7	Have the design and temporary/permanent stabilization of cut and fill slopes been adequately addressed? Is Surface Roughening provided for slopes steeper than 3:1?
[]	[]	[]	MS-8	Have adequate temporary or permanent conveyances (paved flumes, channels, slope drains) provided for concentrated stormwater runoff on cut and fill slopes?
[]	[]	[]	MS-9	Has water seeping from a slope face been addressed (e.g., subsurface drains)?
[]	[]	[]	MS-10	Is adequate inlet protection provided for all operational storm drain and culvert inlets?
[]	[]	[]	MS-11	Are adequate outlet protection and/or channel linings provided for all stormwater conveyance and receiving channels? Is there a schedule indicating:
[]	[]	[]		Dimensions of the outlet protection? Lining? Size of riprap?
[]	[]	[]		Cross section and slope of the channels? Type of lining? Size of riprap, if used?
[]	[]	[]	MS-12	Are in-stream protection measures required so that channel impacts are minimized?
[]	[]	[]	MS-13	Are temporary stream crossings of non-erodible material required where applicable?
[]	[]	[]	MS-14	Are all applicable federal, state and local regulations pertaining to working in or crossing live watercourses being followed?
[]	[]	[]	MS-15	Has immediate restabilization of areas subject to in-stream construction (bed and banks) been adequately addressed?
[]	[]	[]	MS-16	Have disturbances from underground utility line installations been addressed?
[]	[]	[]		No more than 500 linear feet of trench open at one time?
[]	[]	[]		Effluent from dewatering filtered or passed through a sediment-trapping device?
[]	[]	[]		Proper backfill, compaction, and restabilization?

[] [] [] MS-17 Is the transport of soil and mud onto public roadways properly controlled? (i.e., Construction Entrances, wash racks, transport of sediment to a trapping facility, cleaning of roadways at the washing before sweeping and shoveling)

[] [] [] MS-18 Has the removal of temporary practices been addressed?
Have the removal of accumulated sediment and the final stabilization of the resulting disturbed areas been addressed?

[] [] [] MS-19 Are properties and waterways downstream from development adequately protected from deposition, erosion, and damage due to increases in volume, velocity and peak flow rate of stormwater

[] [] [] Is concentrated stormwater runoff leaving the development site discharged to an adequate man-made receiving channel, pipe or storm sewer system?

[] [] [] Are calculations provided to verify the adequacy of all channels and pipes?

[] [] [] If existing natural receiving channels or previously constructed man-made channels or pipes are adequate, have provisions been made to prevent downstream erosion?

[] [] [] Have increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property

[] [] [] Have water quantity requirements under 9VAC25-870-66 been satisfied? Provide documentation.

SECTION 3: NARRATIVE

_____ **3.1 Project description** – This section shall describe the nature and purpose of the land-disturbing activity.

Provide project specific information. Also include the following:

- □ Provide the area (acres to the nearest hundredth) to be disturbed. This disturbed area (limits of disturbance) shall include laydown, access and any other areas that may be disturbed during the course of the project. This area shall provide adequate space for the contractor to perform required work for excavation and grading.
- □ Provide the existing impervious area and the increase, or decrease, in impervious area (acres).
- □ Estimated schedule for project. (Start/end dates, or estimated length of project in months or years)
- □ Ultimate developed condition of the site.

_____ **3.2 Existing site conditions** – This section shall provide a description of the existing topography (% slopes), ground cover, and drainage (on-site and receiving channels).

- □ Discuss any existing drainage or erosion problems and how they are to be corrected.
- □ Provide the size of drainage areas in pre-development and post-development conditions.

_____ **3.3 Adjacent areas** – This section shall provide a description of all neighboring areas such as residential developments, agricultural areas, streams, lakes, roads, etc., that may be affected by the land disturbance. Discuss any environmentally sensitive areas, including any on-site or adjacent water bodies included in the Virginia 303(d) list of impaired waters, and any possible problems during and after construction (traffic issues, dust control, increases in runoff, etc.).

_____ **3.4 Off-site areas** – This section shall describe any off-site land-disturbing activities that may occur (borrow sites, disposal areas, easements, etc.). Identify the Owner of the off-site area and the locality responsible for plan review. Include a statement that any off-site land-disturbing activity associated with this project must have an approved ESC Plan. Submit documentation of the approved ESC Plan for each of these sites.

_____ **3.5 Soils** – This section shall provide a description of the soils on the site, giving such information as soil name, mapping unit, erodibility, permeability, surface runoff, and a brief description of depth, texture and soil structure.

- □ Indicate reference for additional soil information if not included within this section.
- □ Provide a reference to where a copy of the soil survey map can be found within the plan set or engineering report.

_____ **3.6 Critical areas** – This section shall provide a description of areas on the site that may have potentially serious erosion problems or that are sensitive to sediment impacts (e.g., critical slopes, watercourses, wet weather / underground springs, etc.). Discuss any area(s) of the project which may become critical during the project.

_____ **3.7 Erosion and sediment control measures** – This section shall provide a description of the structural and vegetative methods that will be used to control erosion and sedimentation on the site. Controls should satisfy applicable minimum standards and specifications in Chapter 3 of the latest edition of the Virginia Erosion and Sediment Control Handbook (VESCH).

_____ **3.8 Management strategies / Sequence of construction** – This section shall address management strategies, the sequence of construction, and any phasing for the installation of ESC measures. The sequence of construction shall provide specific details concerning the construction and installation and phasing of ESC and SWM measures.

_____ **3.9 Permanent stabilization** – This section shall provide a brief description, including specifications, of how the site will be stabilized after construction is completed. List any soil testing requirements. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.

_____ **3.10 Maintenance of ESC measures** – This section shall provide a schedule of regular inspections, maintenance, and repair of erosion and sediment control structures should be set forth. List who will be responsible for ESC maintenance during the course of the project. VESCH control measures shall be maintained in accordance with the VESCH maintenance schedules, and non-VESCH control measures shall be maintained in accordance with the manufacturer's recommendations.

_____ **3.11 Calculations for temporary erosion and sediment control measures** – For each temporary ESC measure, provide the calculations required by the standards and specifications. All calculations showing pre-development and post-development runoff should be provided including any worksheets, assumptions, and engineering decisions.

_____ **3.12 Stormwater management** –Will the development of the site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Reference where each piece of information can be found within the plan set or engineering report.

Describe the strategy to control stormwater runoff:

- □ Provide exhibits showing the drainage divides, the direction of flow, and the size (acreage) of each of the site drainage areas that discharge runoff off-site, both existing and proposed.
- □ Provide calculations for pre- and post-development runoff from these drainage areas.
- □ Ensure that Minimum Standard 19 is satisfied for each off-site receiving channel, including those that receive runoff from stormwater management facilities.

- □ Provide calculations for the design of each permanent stormwater management facility.
- □ Ensure that increased volumes of sheet flows are diverted to a stable outlet, to an adequate channel, pipe or pipe system, or to a stormwater management facility.
- □ Provide adequacy calculations (capacity and erosion resistance) for all on-site stormwater conveyances in accordance with the next checklist item.

_____ **3.13 Calculations** – Provide the following design calculations as applicable:

- □ Drainage area map with time of concentration (TC) path shown and points of analysis with worksheets.
- □ TC calculation/nomograph
- □ Locality IDF curve
- □ Composite runoff coefficient or RCN calculation
- □ Peak runoff calculations
- □ Stormwater conveyance channel design calculations
- □ Storm drain and storm sewer system design calculations
- □ Hydraulic Grade Line if any pipe in the system is more than 90% full for a 10-year storm
- □ Culvert design calculations
- □ Drop Inlet backwater calculations
- □ Curb inlet length calculations
- □ Water quality calculations for BMPs including worksheets

_____ **3.14 Maintenance of SWM Facilities** – Provide a table with a description of requirements for maintenance of the facility and a recommended schedule for inspections and maintenance.

_____ **3.15 Water Quality** – Is the plan in compliance with 9VAC25-870-63 water quality criteria requirements for new development and development on prior developed land?

_____ **3.16 Water Quantity** – Is the plan (including prescribed calculations) in compliance with 9VAC25-870-66 water quantity criteria requirements?

_____ **3.17 General Construction Permit –** Ensure that the stormwater management criteria outlined in the general construction permit (9VAC25-88 Part II.A3) are met as well as, the elements presented in 9VAC25-870-55.

_____ **3.18 BMP Calculations -** Provide supporting calculations for each best management practice with a checklist; include a completed Design and Plan Review Checklist from Appendix 3 of the Virginia Stormwater Management Handbook. The Virginia Runoff Reduction Method or an equivalent method approved by the board (9VAC25-870-65) shall be used to determine water quality criteria.

_____ **3.19 Specifications for Stormwater and Stormwater Management Structures** – Provide specifications for stormwater and stormwater management structures, i.e., pipe materials, pipe bedding, and stormwater structures.

_____ **3.20 Page Numbers** – Number the pages of the Narrative and the Calculations.

_____ **3.21 General Information** – Narrative contains project specific information, and where appropriate general information has been modified to represent the project specific information and situation.

SECTION 4: SITE PLAN

_____ **4.1 Owner Contact Information** – On the cover sheet, provide name, address, telephone number and email of the owner representative/project manager.

_____ **4.2 Vicinity Map** – A small map locating the site in relation to the surrounding area. Include any landmarks

_____ **4.3 Indicate North** – The direction of north in relation to the site.

_____ **4.4 Limits of Disturbance**– Areas which are to be cleared and graded and areas to be protected during construction. This disturbed area shall include laydown, access and any other areas that may be disturbed during the course of the project. Provide notes on how areas will be marked and for areas NOT to be disturbed.

_____ **4.5 Existing Contours** – The existing contours of the site shall be shown as dashed light lines and elevation labeled adequately.

_____ **4.6 Final Contours and Elevations** – Changes to the existing contours, including final drainage patterns. Note the finished floor elevation (FFE) of all buildings on site, including basements. Proposed contour lines shall be solid and bolder than existing contour lines and the elevations labeled.

_____ **4.7 Profile of Storm Drain System** – Proposed storm drainage components shall be provided in a profile. Pipe diameter, material, inverts, stationing, percent slope, proposed and existing grade, etc. shall be included as part of the profile.

_____ **4.8 Existing Vegetation** –The existing tree lines, grassed areas, or unique vegetation.

_____ **4.9 Soils Map** –The boundaries of different soil types, K factor and soil survey classifications.

_____ **4.10 Existing Drainage Patterns** – The dividing lines and the direction of flow for the different drainage areas. Include the size (acres) of each drainage area.

_____ **4.11 Proposed Drainage Patterns** – The dividing lines and the direction of flow for the different drainage areas. Include the size (acres) of each drainage area.

_____ **4.12 Critical Areas** – Note all areas with potentially serious erosion problems.

_____ **4.13 Site Development** – Show all improvements such as buildings, parking lots, access roads, utility construction, etc.

_____ **4.14 Landscape Plan** – Include a plan showing location and plant selection for landscaped areas.

_____ **4.15 Location of Practices** – Show locations of ESC and SWM practices to be used on the site. Use standard symbols and abbreviations from ESC and SWM handbooks. A legend denoting symbols, line uses and other special characters shall be provided.

_____ **4.16 Offsite Areas** – Include any off-site land-disturbing activities (e.g., borrow sites, disposal areas, etc.) not covered by a separate approved ESC Plan. Discuss who has final authority for off-site areas and who will be responsible for stabilization.

_____ **4.17 Detail Drawings** – Show detail drawings of all SWM and ESC practices to be implemented. Any structural practices used that are not referenced to the ESC handbook or local handbooks should be explained and illustrated with detail drawings. Details should be provided which are clearly dimensioned and reflect the ability to be "built" in the field according to proper design criteria. Alternative ESC/SWM measures must have proper drawings to indicate how and where they are to be constructed.

_____ **4.18 Erosion and Sediment Control Notes** – At a minimum, include the erosion and sediment control notes found in Appendix B. Ensure that all applicable Minimum Standards not covered elsewhere in the plan have been addressed. Ensure that the requirements of Part II.A.2 of the General Construction Permit (9VAC25-880) are addressed.

_____ **4.19 Minimum Standards** – Minimum Standard 1 through Minimum Standard 19 shall be included in the plan set.

_____ **4.20 Legend** – Provide a complete listing of all ESC and SWM measures to be used, including the VESCH uniform code symbol and the standard and specification number. Include any other items necessary to identify pertinent features in the plan.

_____ **4.21 Property Lines and Easements** – Show all property and easement lines. For each adjacent property, list the deed book and page number and the property owner's name and address.

Project Name: _____

Plan Preparer's Signature:_____Date:_____

Appendix B: General Erosion and Sediment Control Notes

General Erosion and Sediment Control Notes

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia Regulations 9VAC25-840 Erosion and Sediment Control Regulations.

ES-2: The plan approving authority (JMU Stormwater Coordinator) must be notified at least one week prior to the pre-construction conference, one week prior to commencement of land disturbing activity and one week prior to final inspection. The name of the certified responsible land disturber, including their certification number and contact information must be provided to the plan approving authority prior to actual engagement in land disturbing activity.

ES-3: All erosion and sediment control measures shall be placed prior to or as a first step in clearing.

ES-4: A copy of the approved erosion and sediment control plan and access to the Virginia Erosion and Sediment Control Handbook shall be maintained on the site at all times.

ES-5: Prior to commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the JMU Stormwater Coordinator for review and approval or submit documentation that the other area is currently covered under a separate approved erosion and sediment control plan.

ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan approving authority.

ES-7: All disturbed areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved, after which, upon approval of the plan approving authority, the controls shall be removed. Disturbed soil areas resulting from the removal of temporary measures shall be permanently stabilized.

ES-8: During dewatering operations, water shall be pumped into an approved filtering device.

ES-9: The contractor shall inspect all erosion control measures at least once in every two-week period and within 48 hours following any runoff producing storm event. The operator shall inspect in accordance with the Construction General Permit requirements when applicable. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately. Contractor shall submit evidentiaries of inspection reports to the owner or within the Stormwater Pollution Prevention Plan (SWPPP).

ES-10: The contractor is responsible for the removal of sediment that has been transported onto paved or public roads. At a minimum, tracking shall be cleaned by the end of each work day.

ES-11: Temporary/Permanent stabilization operations shall be initiated within 7 days after reaching final grade or upon suspension of grading operations for anticipated duration of greater than 14 days or upon completion of grading operations for a specific area.

ES-12: The contractor shall be responsible for preventing surface and air movement of dust from exposed soils.

Appendix C: ESC/SWM Inspection Report

AS&S HOLDER GENERAL PERMIT SITE INSPECTION CHECKLIST

(All section references below are to the Construction GP 9VAC25-870-70 effective 7/1/19)

Project Name: _____ Permit Number: _____

Project Address: _____ County/City: _____

Project Operator: _____ Operator Telephone: _____

Operator Address: _____ County/City: _____ ZIP:_____

Inspector Name: _____ Inspection Date: _____ Time: _____

Date of Last Measurable Storm Event: _____ Amount (inches) _____ Storm Duration (hours) _____

		Yes	No	N/A
1	Copy of notice of coverage letter posted near main entrance: Part II(C)			
2	Information for public access to electronic format or had copy of SWPPP posted near main entrance:			
3	Copy of complete SWPPP available onsite: Part II(A)			
3a	Signed copy of registration statement: Part II(A)1.a			
3b	Copy of permit: Part II(A)1.b			
3c	Copy of notice of coverage letter: Part II(A)1.c			
3d	Narrative description of the nature of construction activity: Part II(A)1.d			
3e	Legible site plan: Part II(A)1.e			
3f	Approved ESC plan or ESC plan developed in accordance with department approved annual standards and specifications: Part II(A)3			
3g	Approved SWM plan or SWM plan developed in accordance with department approved annual standards and specifications: Part II(A)4			
3h	Pollution prevention plan: Part II(A)4			
3i	Requirements for discharges to impaired waters, surface waters with an applicable TMDL, exceptional waters: Part II(A)5			
3j	Contact information for qualified personnel conducting inspections: Part II(A)6			
3k	SWPPP signed in accordance with Part III K: Part II(A)8			
4	SWPPP is being amended, modified and updated: Part (B)			
4a	SWPPP clearly identifies the contractor(s) that will implement and maintain each control measure identified in SWPPP: Part II(B)3			
4b	Record dates when major grading activities occurred: Part II(B)4.a(1)			
4c	SWPPP amendments, modifications, or updates singed in accordance with Part III K: Part II(B)5			
5	SWPPP inspections carried out: Part II(F)			
5a	Inspections conducted at required frequency: Part II(F)2			
5b	Inspection reports summarize findings of inspections including corrective actions: Part II(F)4.a-i			
5c	Inspection reports have date and signature of qualified personnel conducting inspections and the operator or authorized representative: Part II(F)4.j			
5d	Inspection reports retained as part of SWPPP: Part II(F)4			
6	Erosion and sediment controls implemented: Part II(A)2.c			
6a	Volume and velocity of stormwater runoff controlled within site to minimize erosion: Part IIIIII(A)2.c(1)			
6b	Stormwater discharges, including peak flow rates and total stormwater volume controlled to minimize erosion at outlets and to minimize downstream channel and stream bank erosion: Part II(A)2.c(2)			
6c	Soil exposed during construction activity minimized: Part II(A)2.c(3)			
6d	Disturbance of steep slopes minimized: Part II(A)2.c(4)			
6e	Natural buffers around surface waters provided and maintained, stormwater directed to vegetated areas to increase sediment removal, and maximizes stormwater infiltration: Part II(A)2.c(6)			
6f	Soil compaction minimized and topsoil preserved: Part II(A)2.c(7)			
6g	Stabilization of disturbed areas initiated immediately whenever any clearing, grading, or excavating, or other land-disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for more than 14 days: Part II(A)2.c(8)			

6h	Outlet structures utilized that withdraw stormwater from the surface when discharging from sediment basins or sediment traps: Part II(A)2.c(9)			
7	Pollution prevention plan implemented: Part II(A)4			
7a	Prevent and respond to leaks, spills and other releases including (i) procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases; and (ii) procedures for reporting leaks, spills, and other releases: Part II(A)4.e(1)			
7b	Prevent discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities (e.g. providing secondary containment such as spill berms, decks, spill containment pallets, providing cover where appropriate, and having spill kits readily available: Part II(A)4.e(2)			
7c	Prevent discharge of soaps, solvents, detergents, and wash water from construction materials, including clean-up of stucco, paint, form release oils, and curing compounds: Part II(A)4.e(3)			
7d	Minimize discharge of pollutants from vehicle and equipment washing, wheel wash water and other types of washing: Part II(A)4.e(4)			
7e	Direct concrete wash water into a leak proof container or leak proof settling basin: Part II(A)4.e(5)			
7f	Minimize discharge of pollutants from storage, handling, and disposal of construction products, materials and wastes: Part II(A)4.e(6)			
7g	Prevent discharge of fuels, oils, and other petroleum products, hazardous or toxic wastes, and sanitary wastes: Part II(A)4.e(7)			
7h	Address any other discharge from the potential pollutant-generating activities not addressed above: Part II(A)4.e(8)			
8	Appears to be impact(s) to receiving waters: Part I(B)6, Part I(D), or Part II(A)2c(2) or (5)			

VSMP CONSTRUCTION GP SITE INSPECTION CHECKLIST

Project Name: _____ Permit Number: _____

Project Address: _____ County/City: _____

Inspector Name: _____ Inspection Date: _____ Time: _____

STAGE OF CONSTRUCTION

Pre-Construction Conference		*Building Construction*		*Construction of SWM Facilities*	
Clearing & Grading		*Finish Grading*		*Maintenance of SWM Facilities*	
Rough Grading		*Final Stabilization*		*Other:*	

#	*State Regulation*[1]			*Description and Location of Condition Observed*[2]*, Recommended Corrective Actions, and Other Comments*
		Initial	*Repeat*	

1 - Refers to applicable regulation found in the most recent publication of the Virginia Erosion and Sediment Control Regulations (9VAC25-840), the General Permit for Discharges of Stormwater from Construction Activities (9VAC25-880), or the Virginia Stormwater Management Program Regulations (9VAC25-870).

2 – Note whether or not off-site impacts resulting from the condition observed was evident during the inspection.

Recommended Corrective Action Deadline: _____

Targeted Reinspection Date: ±2 weeks

The recommended corrective action deadline date applies to all conditions noted on this report unless otherwise noted. If listed condition(s) currently constitute non-compliance and/or corrective actions are not completed by the deadline, other enforcement actions may be issued to the entity responsible for ensuring compliance on the above project.

Certified Inspector Name/Number: _____

Signature: _____ Date: _____

Appendix D: BMP Field Assessment Worksheet

BMP Field Assessment Worksheet

Christopher Newport University
AFG Office
1 University Place
Newport News, VA 23606
Stormwater Coordinator: Dean Whitehead
757-594-8416

BMP ID:		Zone:
Inspector:		Rating Key
Inspection Date:		0 = Good Condition. No Action Required 1 = Moderate Condition. See recommendation 2 = Degraded Condition. Routine maintenance, and/or repair needed. 3 = Serious Condition. Immediate need for maintenance, repair, and/or replacement. N/A = Not applicable
Inspection Time:		
Last Storm Event:		
Notes:		

Contributing Drainage Area	Rating
Inlet	
Vegetation/Mulch	
Structure	
Outlet	
Other	
Other	
Other	
Overall Rating	

Appendix E: Projects

Christopher Newport University
Land Disturbing Activities
July 1, 2019 thru June 30, 2023

Project Name	Project Location	Project Manager	Contact Information	Project Description	Approx. Area (acres)	Proposed Construction Start Date	Proposed Construction Finish Date

Appendix F: Annual Standards & Specifications Information Sheet

Annual Standards & Specification (AS&S) Entity Information Sheet

1. Annual Standards & Specifications Entity:		
2. AS&S Coverage Verification		
a. Operator:		
b. Project name:		
c. Estimated Area to be Disturbed (acres):		
3. Plan Approval Verification		
a. Erosion & Sediment Control (ESC) Plan		
	i. ESC Plan Reviewer Name and Certification Number:	
	ii. ESC Plan Date:	
	iii. ESC Plan Approval Date:	
b. Stormwater Management (SWM) Plan:		
	i. Technical Criteria Used:	
	ii. SWM Plan Reviewer Name and Certification Number:	
	iii. SWM Plan Date:	
	iv. SWM Plan Approval Date:	
4. Comments:		

Printed Name:	**Title:**
Signature:	**Date:**

(Please sign in ink. This must be signed by an employee of the AS&S entity who has oversight of this project and is aware of its coverage under their AS&S.)

(Retain a copy of this form onsite and within project specific AS&S files.)

Instructions for completion:

1. AS&S Entity/Holder Name as it appears on the AS&S Approval Letter
2.a. Operator = Owner, operator, developer, person or general contractor that the AS&S holder is allowing to operate under their DEQ approved AS&S.
2.b. Project Name = Name of the construction activity as it appears on the Registration Statement.
2.c. Estimated Area to Be Disturbed = Provide the estimated area (to the nearest one-hundredth acre) to be disturbed by the construction activity. Include the estimated area of land disturbance that will occur at any off-site support activity to be covered under this general permit.
3.a. Erosion & Sediment Control (ESC) Plans **i.** = AS&S ESC plans are required to be reviewed and approved by DEQ-Certified ESC Plan Reviewers. Provide the name and certification number of the qualified individual. **ii.** = Provide the date of the ESC plan. **iii.** = Provide the date the ESC plan was approved.
3.b. Stormwater Management (SWM) Plans **i.** = The technical criteria used for this project will be either IIB or IIC per the SWM Regulations; 9VAC25-870. **ii.** = AS&S SWM plans are required to be reviewed and approved by DEQ-Certified SWM Plan Reviewers. Provide the name and certification number of the qualified individual. **iii.** = Provide the date of the SWM plan. **iv.** = Provide the date the SWM plan was approved.
4. Comments = Indicate whether the project package contains any requests (e.g. SWM plan waiver, Decline to Permit, Variance, Exception, Deviation…) DEQ is the VESCP and VSMP Authority for AS&S Entities. Approval for such requests must be issued by DEQ.

(Further questions can be directed to StandardsandSpecs@deq.virginia.gov)

Appendix G: Non-VESCH Specifications

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Section 1: Construction Entrance & Construction Road Stabilization

Alturnamats & Versamats

Definition
Temporary protective matting employed to provide ingress and egress throughout the construction site.

Purpose
The mats provide vehicular access while protecting the existing ground cover.

Conditions Where Practice Applies
Temporary protective mats are typically used in areas in which installing a temporary stone construction entrance/road is not feasible and/or in situations where access will be needed for a relatively short period of time.

Planning Considerations
Provisions must be made on construction sites to minimize the transport of sediment by vehicular traffic onto a paved surface per Minimum Standard #17. The use of temporary matting prevents vehicles from disturbing unpaved, grassed, and/or denuded areas. As a result, the matting reduces the amount of mud picked up by construction vehicles.

Construction Specifications
1. Install mats where temporary access is needed.
2. Join mats together using links to ensure the mats do not shift.

Matrax®
One Size Does Not Fit All.

AlturnaMATS®

ALTURNAMATS® GROUND PROTECTION MATS

The Original Ground Protection Mats Featuring Maximum Traction Diamond Plate Tread Design

These rugged mats are made of 1/2" thick polyethylene so they are virtually indestructible. They withstand vehicles weighing up to 120 tons, bend but do not break and feature a Limited Lifetime Warranty. AlturnaMATS® have been tested in record cold and heat. AlturnaMATS® are an environmentally friendly mat as they are made from recycled plastic materials.

With AlturnaMATS®, getting stuck is virtually eliminated. They are available smooth on one side or smooth on both sides, ideal for removing dirt or gravel.

ALTURNAMATS® FEATURES:

- Easily supports 120 ton vehicles
- Rugged 1/2" thick polyethylene
- Bold cleat design for great traction
- Build a roadway or working platform in minutes
- Leave turf smooth, even in soft conditions
- No more splintered, warped, water logged plywood
- Simply hosing down leaves the mats clean
- Available in black, white and clear mats
- Mats can be locked together with Turn-A-Links forming a continuous roadway
- Limited Lifetime Warranty

Diamond Plate Tread

SIZES TO SUIT YOUR NEEDS

BLACK	WHITE	APPROX. SHIP WEIGHT
4' x 8' (1.22 x 2.44m)	4' x 8' (1.22 x 2.44m)	86.00 lb. (39.00 kg.)
3' x 8' (0.91 x 2.44m)	3' x 8' (0.91 x 2.44m)	64.50 lb. (29.25 kg.)
3' x 6' (0.91 x 1.83m)	3' x 6' (0.91 x 1.83m)	51.00 lb. (23.13 kg.)
2' x 8' (0.61 x 2.44m)	2' x 8' (0.61 x 2.44m)	43.00 lb. (19.50 kg.)
2' x 6' (0.61 x 1.83m)	2' x 6' (0.61 x 1.83m)	32.25 lb. (14.62 kg.)
2' x 4' (0.61 x 1.22m)	2' x 4' (0.61 x 1.22m)	21.50 lb. (9.75 kg.)

LANDSCAPING

TREE CARE

CONSTRUCTION

CONCRETE

SI

MATRAX • 855-675-7512 • www.matraxinc.com

VersaMATS®

VERSAMATS® GROUND PROTECTION MATS

Featuring an Exclusive Slip-Resistant Tread Design

VersaMATS® literally are the most versatile ground protection mats in the industry. The flat, slip-resistant tread permits pedestrians to walk safely on the mats, yet they are as rugged as the original AlturnaMATS®. The reverse side has the same diamond plate tread as AlturnaMATS®, providing great traction for vehicles.

VersaMATS® are also available in white and clear , making them ideal for safe use as long walkways even in darkened conditions. They are also available smooth on one side.

VERSAMATS® FEATURES:

- Leaves turf smooth even in soft soil conditions
- Tough 1/2" thick polyethylene
- Two practical cleat designs... for walking and vehicle traffic
- Withstand 120-ton loads
- Build temporary roadway or walkway in minutes
- Lock together with Turn-A-Links
- Limited Lifetime Warranty

EASY TO WALK ON
SAFE TO WORK ON
GREAT TO DRIVE ON

SIZES TO SUIT YOUR NEEDS

BLACK	WHITE	APPROX. SHIP WEIGHT
4' x 8' (1.22 x 2.44m)	4' x 8' (1.22 x 2.44m)	86.00 lb. (39.00 kg.)
3' x 8' (0.91 x 2.44m)	3' x 8' (0.91 x 2.44m)	64.50 lb. (29.25 kg.)
2' x 8' (0.61 x 2.44m)	2' x 8' (0.61 x 2.44m)	43.00 lb. (19.50 kg.)

Front Side Tread

Reverse Side Tread

NOW/SLUSH

UTILITIES

GOLF COURSES

CEMETERIES

DRILLING

From the Experts in Industrial Safety

SAFETY TECH PADS
ONE PIECE PLASTIC OUTRIGGER PADS

Delivering the safety, quality and performance you expect from the industry leader.

SAFETY TECH PADS FEATURES:

- Reliable Load Distribution
- Lightweight
- Safety Texturing
- Memory Recovery
- Lifetime Guarantee

STANDARD PADS

MODEL	LOAD VERTICAL	LOAD 45° ANGLE	WIDTH	LENGTH	HEIGHT	WEIGHT	SQUARE INCH
PAD15151.75	40,000 lb. (KG20,412)	18,000 lb. (KG9,072)	15 in. (C38.1)	15 in. (C1.905)	.75 in. (C2.54)	5.5 lb. (KG3.40)	225 (CT1,451.70)
PAD18181	55,000 lb. (KG24,948)	30,000 lb. (KG13,608)	18 in. (C45.72)	18 in. (C45.72)	1 in. (C2.54)	11 lb. (KG4.99)	324 (CT2,090.45)
PAD24241	60,000 lb. (KG27,216)	35,000 lb. (KG15,876)	24 in. (C60.96)	24 in. (C60.96)	1 in. (C2.54)	20 lb. (KG9.07)	576 (CT3,761.35)
PAD24242	62,000 lb. (KG28,123)	40,000 lb. (KG18,144)	24 in. (C60.96)	24 in. (C60.96)	2 in. (C5.08)	38 lb. (KG17.24)	576 (CT3,761.35)
PAD30301	81,000 lb. (KG36,741)	41,000 lb. (KG18,597.6)	30 in. (C76.2)	30 in. (C76.2)	1 in. (C2.54)	31 lb. (KG14.06)	900 (CT5,806.8)
PAD36361	93,000 lb. (KG42,184.8)	43,000 lb. (KG19,504.8)	36 in. (C91.44)	36 in. (C91.44)	1 in. (C2.54)	45 lb. (KG20.41)	1296 (CT8,361.79)
PAD48481	135,000 lb. (KG61,236)	52,000 lb. (KG23,587.2)	48 in. (C121.92)	48 in. (C121.92)	1 in. (C2.54)	80 lb. (KG36.29)	2304 (CT14,865.4)
PAD30302	85,000 lb. (KG38,556)	43,000 lb. (KG19,504.8)	30 in. (C76.2)	30 in. (C76.2)	2 in. (C5.08)	62 lb. (KG28.12)	900 (CT5,806.8)
PAD36362	98,000 lb. (KG44,252.8)	45,000 lb. (KG20,412)	36 in. (C91.44)	36 in. (C91.44)	2 in. (C5.08)	90 lb. (KG40.83)	1296 (CT8,361.79)
PAD48482	140,000 lb. (KG63,504)	55,000 lb. (KG24,948)	48 in. (C121.92)	48 in. (C121.92)	2 in. (C5.08)	160.0 lb. (KG72.58)	2304 (CT14,865.4)

*8"x10" Outrigger Leg applied under two separate conditions: 10,000# vertically and 10,000# with a 45 degree angle.
**TuffGrip Handle located on width side of all pads. Pads 900 sq.in. or larger have two or more handles or more handles opposite each other.
Custom size pads available. Requires a minimum order. Lead time for non-stock items is 30-45 days.
KEY: C = Centimeters; KG = Kilograms; CT = Square Centimeters

Safety Texture

MANUF. HOUSING

REC AREAS/EVENTS

TRENCHING

SEPTIC PUMPING

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Matrax®
One Size Does Not Fit All.

AlturnaMATS® & VersaMATS®

AlturnaMATS® & VersaMATS® each leave turf smooth, even under heavy vehicle traffic. No costly turf repair bills and you'll Never Get Stuck Again.

ADVANTAGES:

- AlturnaMATS: Featuring a bold diamond plate tread for maximum traction.
- VersaMATS: Featuring a flat, slip-resistant tread on one side designed for pedestrian traffic, and the bold diamond plate tread on the other side for vehicle traffic.
- Limited Lifetime Warranty

These mats virtually eliminate damage to lawns and landscaped areas throughout the world... from North America, Asia, Australia, Europe, to even Antarctica. These rugged mats are the popular choice among professionals. They are easy to use. Lock into place to form a continuous, solid roadway or work platform and they last for years. They are unequalled for quality and performance under the most hazardous conditions.

Each mat can be used in a broad variety of applications such as construction, golf courses, utilities, landscaping, tree care, cemeteries, drilling, sewage...wherever saving the costs of ground restoration is a factor. And they are great to save heavy vehicles from getting stuck in mud.

AlturnaMATS and VersaMATS provide locking links designed of steel to fit into holes on each end of the mats, locking them end-to-end to create a continuous roadway, or you can easily create a large platform for working vehicles.

**EASY TO WALK ON... SAFE TO WORK ON...
GREAT TO DRIVE ON PLUS...
PERFECT FOR STORING MATERIALS
ON WORK SITE AND OUT OF THE MUD**

DON'T GET STUCK IN A RUT!

Now there is no reason to create ruts such as shows here after a stumper traversed this front lawn. The owner had the ruts repaired at a cost of $1,800 and needless to say, never used the tree removal company again.

MATRAX • 855-575-7512 • www.matraxinc.com

ALTURNAMATS® ACCESSORIES

TURN-A-LINKS

Steel links lock mats together to form a semi-permanent, yet portable, continuous roadway, walkway or working platform. The same steel material, but with a galvanized coating: easier to locate & harder to rust.

Single Turn-a-Link

Double Turn-a-Link

Galvanized Turn-A-Link: Single or Double

EZ-LINK SYSTEM

E-Z Links are a quick & convenient linking system for the AlturnaMATS® VersaMATS®. The links are available in single or double, & are suitable for pedestrian applications as well as movement of light, compact equipment (Less than 12,000 GVW) when on stable ground conditions.

Single E-Z Link

DESCRIPTION	ITEM NUMBER	SHIP WEIGHT
SINGLE ROUND LINK	RTL-S-G	8 oz.
DOUBLE ROUND LINK	RTL-D-G	20 oz.
SINGLE FLAT LINK	FTL-SG	8 oz.
DOUBLE FLAT LINK	FTL-DG	20 oz.
SINGLE EZ LINKS	EZL-S	4 oz.
DOUBLE EZ LINKS	EZL-D	6 oz.

MAT-PAK

This complete package is the handy way to transport and store your AlturnaMATS®.

Pak Consists of:

- 12 Mats (4' x 8' or 3' x 8')
- 1 Metal storage, skid rack
- 20 Single Turn-A-Links
- 2 Handi-Hooks
- 2 Ratchet Straps

MAT-PAK DIAMOND PLATE	ITEM NO.	WEIGHT
Black – 4' x 8' Package	AMCP4	1126 lbs.
Black – 3' x 8' Package	AMCP3	868 lbs.
White – 4' x 8' Package	WMCP4	1126 lbs.
White – 3' x 8' Package	WMCP3	868 lbs.
MAT-PAK VERSAMATS®	**ITEM NO.**	**WEIGHT**
Black – 4' x 8' Package	VMCP4	1126 lbs.
Black – 3' x 8' Package	VMCP3	868 lbs.
White – 4' x 8' Package	WVCP4	1126 lbs.
White – 3' x 8' Package	WVCP3	868 lbs.

HANDI-HOOKS

AlturnaMATS®* Handi-Hooks make moving mats easier, even in wet areas. Made of steel rod, painted white.

LENGTH	WEIGHT
3' (91.44cm)	2.5 lbs. (1.13kg)

Manufactured by CHECKERS® INDUSTRIAL SAFETY PRODUCTS

To view our full line of Safety Products, visit us at www.matraxinc.com or call 1-855-575-7512.

MADE IN THE USA

Maintenance/Inspections

The matting shall be maintained in a condition which will prevent tracking or flow of mud onto public rights-of-way. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately. Inspect the matting to ensure adjoining pieces do not separate. The use of water trucks to remove materials dropped, washed, or tracked onto roadways is not be permitted under any circumstances. If matting begins to separate, adjust or align the entrance/road as necessary.

Section 2: Dewatering

Dandy Dewatering Bag

Definition and Purpose
A temporary settling and filtering device for water which is discharged from dewatering activities.

Purpose
To filter sediment-laden water prior to the water being discharged off-site.

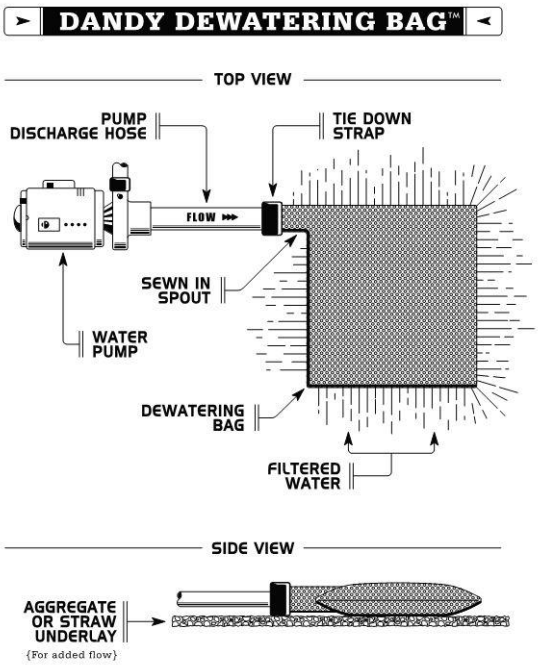
Considerations Where Practice Applies
Wherever sediment-laden water must be removed from a construction site by means of pumping.

Planning Considerations
Water which is pumped from a construction site usually contains a large amount of sediment. A dewatering structure is designed to remove the sediment before water is released off-site.

A dewatering structure may not be needed if there is a well stabilized, vegetated area on-site to which water may be discharged. The area must be stabilized so that it can filter sediment and at the same time withstand the velocity of the discharged water without eroding. A minimum filtering length of 75 feet must be available in order for such a method to be feasible.

Design Criteria
The dewatering bag must be sized (and operated) to allow pumped water to flow through at an appropriate rate.

Construction Specifications
1. Place lifting straps under the unit to facilitate removal after use.
2. Unfold Dewatering Bag on stabilized area over dense vegetation, straw, or gravel (if an increased drainage area is needed).
3. Insert discharge hose from pump into Dandy Dewatering Bag a minimum of six (6) inches and tightly secure with attached strap to prevent water from flowing out of the unit without being filtered.



Maintenance/Inspections

1. Replace the unit when it is half full of sediment or when the flow rate of the pump discharge has been reduced to an impractical rate.
2. The accumulated sediment which is removed from a dewatering device must be spread on-site and stabilized or disposed of at an approved disposal site as per approved plan.
3. If using optional oil absorbents, remove and replace absorbent pillow when it nears saturation.

Section 3: Inlet Protection

Dandy Bag, Dandy Curb, Dandy Curb Bag, Dandy Curb Sack, and Dandy Sack

Definition
A sediment filter around a storm drain drop inlet or curb inlet.

Purpose
To prevent sediment from entering storm drainage systems prior to permanent stabilization of the disturbed area.

Conditions Where Practice Applies
Where storm drain inlets are to be made operational before permanent stabilization of the corresponding disturbed drainage areas.

Planning Considerations
Storm sewers which are made operation prior to stabilization of the association drainage areas can convey large amounts of sediment to natural drainageways. In case of extreme sediment loading, the storm sewer itself may clog and lose a major portion of its capacity. To avoid these problems, it is necessary to prevent sediment from entering the system at the inlets.

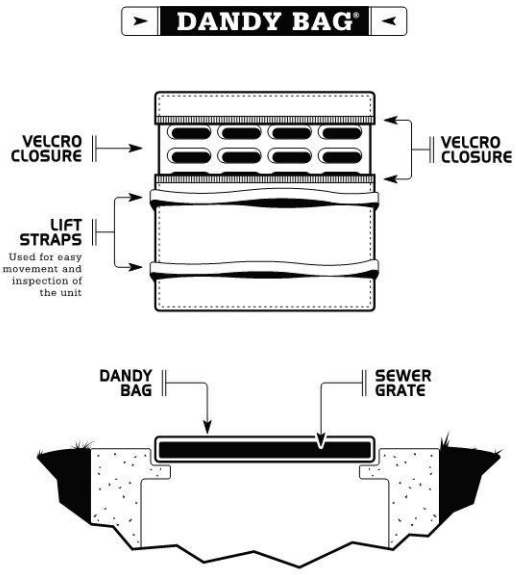
This practice contains several types of inlet filters and traps which have different applications dependent upon site conditions and type of inlet. The following inlet protection devices are for drainage areas of one acre or less.

Design Criteria
1. Drainage area shall be no greater than 1 acre.
2. The inlet protection device shall be constructed in a manner that will facilitate clean-out and disposal of trapped sediment and minimize interference with construction activities.
3. The inlet protection measure shall be appropriately sized to prevent stormwater from unintentionally bypassing the protection measure.

Construction Specifications

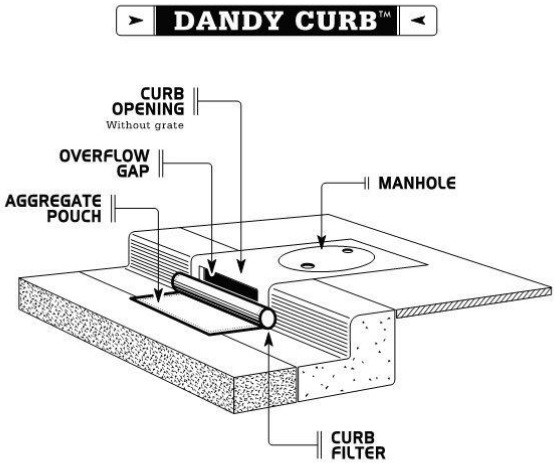
Dandy Bag

1. Place the empty Dandy Bag over the grate as the grate stands on end.
2. Tuck the enclosure flap inside to completely enclose the grate.
3. Holding the lifting devices, insert the grate into the inlet being careful not to damage the Dandy Bag unit.



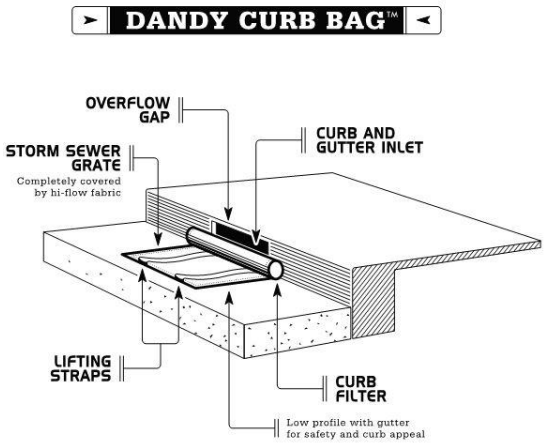
Dandy Curb

1. Place Dandy Curb inlet protection unit on ground with aggregate pouch on street side near inlet it will be installed on.
2. Fill pouch with aggregate such as #5-7, 8's or similar to a level (at least ½ full) that will keep unit in place during a rain event and create a seal between the Dandy Curb and the surface of the Street. Reseal Velcro access.
3. Center the unit against curb or median inlet opening so that the curb side of the unit creates a seal with the curb or median barrier and inlet structure. There will be approximately twelve (12) inches of inlet protection unit overhanging on each side of the opening. If the unit is not installed in this manner, it will not function properly.



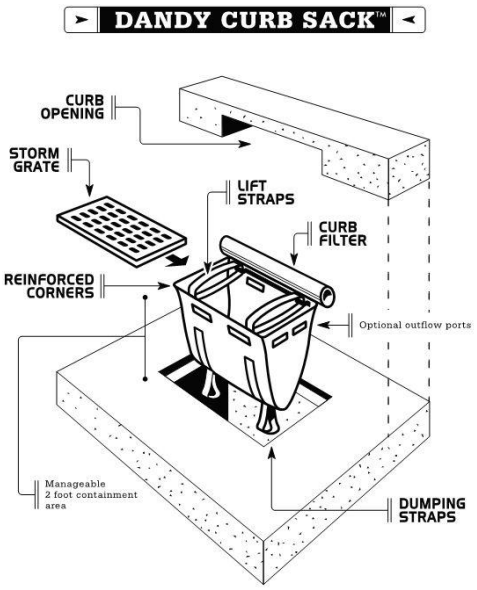
Dandy Curb Bag

1. Place the empty Dandy Curb Bag unit over the grate as the grate stands on end.
2. Tuck the enclosure flap inside to completely enclose the grate.
3. Holding the lifting devices, being careful not to damage the sewn fabric unit, insert the grate into its frame, street side edge first, then lower back edge with cylindrical tube into place. The cylindrical tube should be partially blocking the curb hold opening when installed properly.



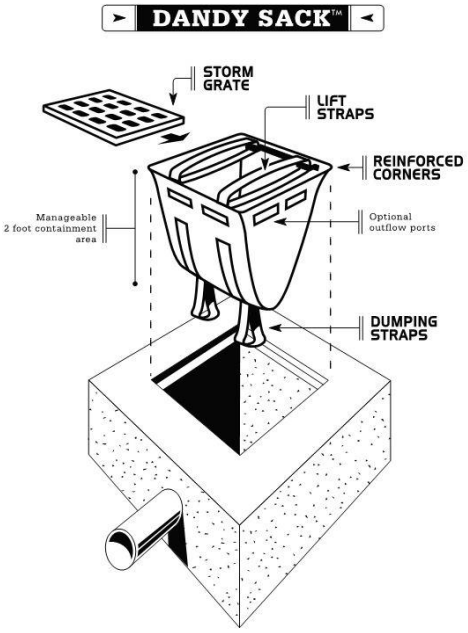
Dandy Curb Sack

1. Remove the grate from the catch basin.
2. Stand the grate on end. Move the top lifting straps out of the way and place the grate into the Dandy Curb Sack unit so that the grate is below the top straps and above the lower straps. The grate should be cradled between the upper and lower straps.
3. Holding the lifting devices, insert the grate into the inlet, then lower back edge with cylindrical tube into place, being careful that the grate remains in place and being careful not to damage the Dandy Curb Sack unit. The cylindrical tube should partially block the curb hood opening when installed properly.



Dandy Sack

4. Remove the grate from the catch basin.
5. Stand the grate on end. Move the top lifting straps out of the way and place the grate into the Dandy Sack unit so that the grate is below the top straps and above the lower straps. The grate should be cradled between the upper and lower straps.
6. Holding the lifting devices, insert the grate into the inlet, being careful that the grate remains in place and being careful not to damage the Dandy Sack unit.



Maintenance/Inspections

1. Structures shall be inspected after each runoff producing rain event and repairs shall be made as needed.
2. Sediment shall be removed as necessary. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
3. Replace the inlet protection measure if any rips, tears, or holes are found.

Erosion Eel and Gutter Buddy

Definition
A sediment filter around a storm drain drop inlet or curb inlet.

Purpose
To prevent sediment from entering storm drainage systems prior to permanent stabilization of the disturbed area.

Conditions Where Practice Applies
Where storm drain inlets are to be made operational before permanent stabilization of the corresponding disturbed drainage areas.

Planning Considerations
Storm sewers which are made operation prior to stabilization of the association drainage areas can convey large amounts of sediment to natural drainageways. In case of extreme sediment loading, the storm sewer itself may clog and lose a major portion of its capacity. To avoid these problems, it is necessary to prevent sediment from entering the system at the inlets.

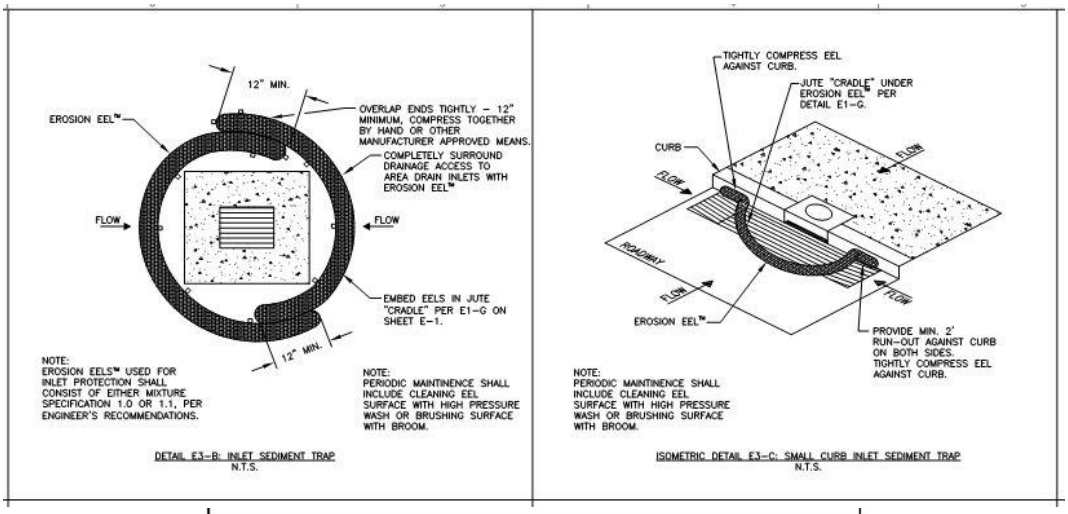
This practice contains several types of inlet filters and traps which have different applications dependent upon site conditions and type of inlet. The following inlet protection devices are for drainage areas of one acre or less.

Design Criteria
1. Drainage area shall be no greater than 1 acre.
2. The inlet protection device shall be constructed in a manner that will facilitate clean-out and disposal of trapped sediment and minimize interference with construction activities.
3. The inlet protection measure shall be appropriately sized to prevent stormwater from unintentionally bypassing the protection measure.

Construction Specifications

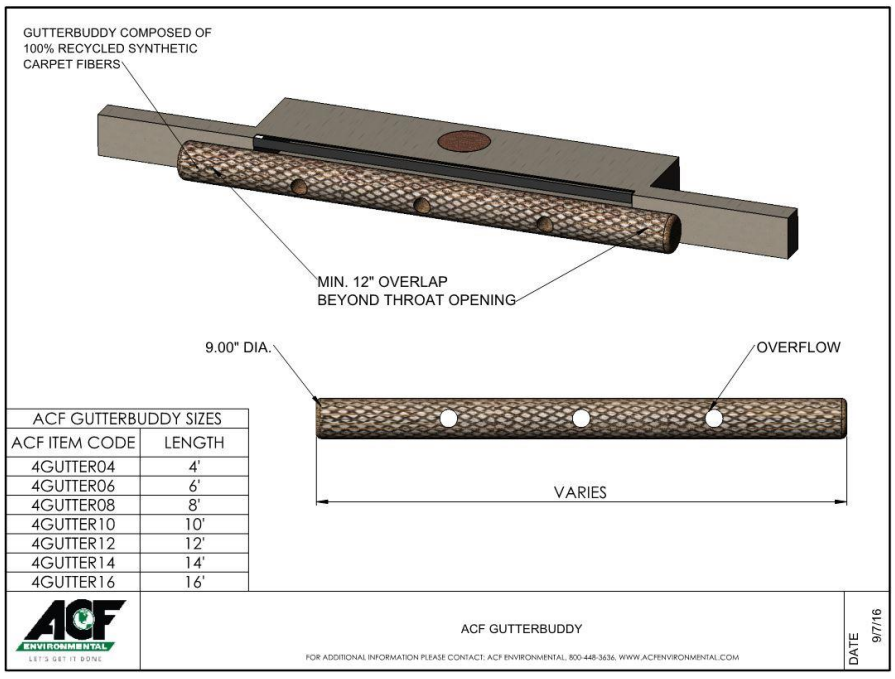
Erosion Eel

1. Place Erosion Eel at curb inlet. Bed the Eel in a jute mesh (or Flocmat) cradle.
2. If more than one Erosion Eel is placed in a row, install the Eels by firmly butting the sewn end against tied end of the Eels together to form a butt join. No wraps are required around the joint locations.
3. Eels shall be installed where the handles will be positioned at the very top of the bag.



Gutter Buddy

1. Choose an appropriately sized Gutter Buddy and Install the measure in front of the curb inlet.
2. Ensure the Gutter Buddy overlaps a minimum of 12″ beyond the throat opening.



Maintenance/Inspections

1. Structures shall be inspected after each runoff producing rain event and repairs shall be made as needed.
2. Sediment shall be removed, and the protection device restored to its original dimensions when sediment has accumulated to one half the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
3. Replace the inlet protection measure if any rips, tears, or holes are found.

Silt Sack

Definition
A sediment filter around a storm drain drop inlet or curb inlet.

Purpose
To prevent sediment from entering storm drainage systems prior to permanent stabilization of the disturbed area.

Conditions Where Practice Applies
Where storm drain inlets are to be made operational before permanent stabilization of the corresponding disturbed drainage areas.

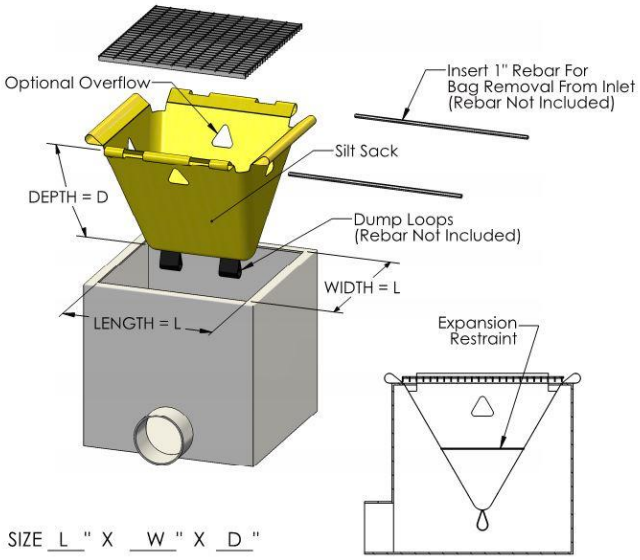
Planning Considerations
Storm sewers which are made operation prior to stabilization of the association drainage areas can convey large amounts of sediment to natural drainageways. In case of extreme sediment loading, the storm sewer itself may clog and lose a major portion of its capacity. To avoid these problems, it is necessary to prevent sediment from entering the system at the inlets.

This practice contains several types of inlet filters and traps which have different applications dependent upon site conditions and type of inlet. The following inlet protection devices are for drainage areas of one acre or less.

Design Criteria
1. The drainage area shall be no greater than 1 acre.
2. The inlet protection device shall be constructed in a manner that will facilitate clean-out and disposal of trapped sediment and minimize interference with construction activities.
3. The inlet protection measure shall be appropriately sized to prevent stormwater from unintentionally bypassing the protection measure.

Construction Specifications
1. Remove the grate and place the sack in the opening. Hold approximately six inches of the sack outside the frame. This is the area of the lifting straps.
2. Replace the grate to hold the sack in place.

Silt Sack - Type A



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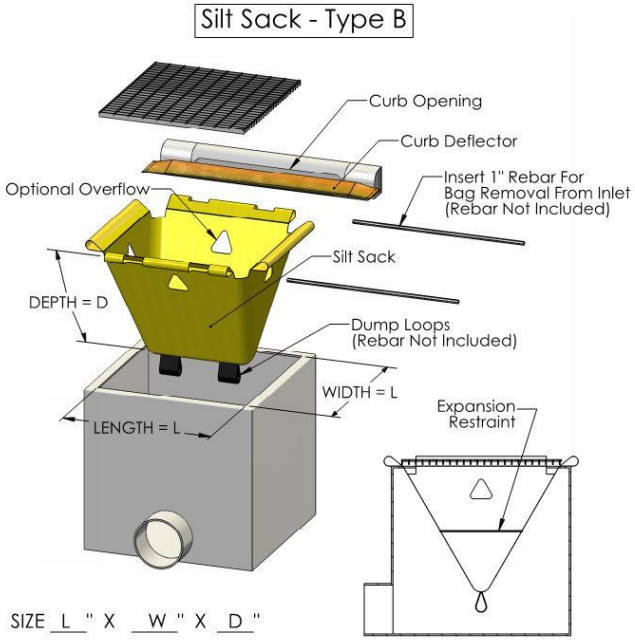
Silt Sack - Type B



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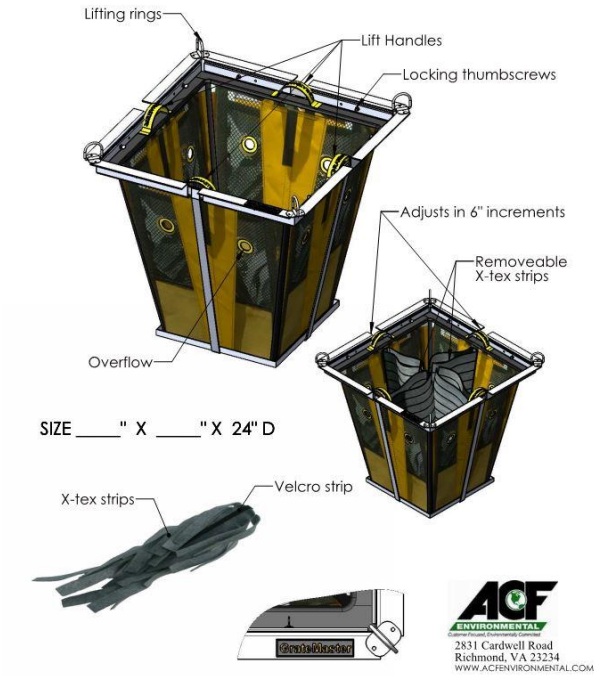
GrateMaster - Type C



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Maintenance/Inspections

1. Inlet protection shall be inspected immediately after each runoff producing rain event.
2. Check for tears, rips, or holes in sack. If noticed, have replaced immediately.
3. When the restraint cord is no longer visible, the Silt Sack is full and should be emptied.
4. To remove the Silt Sack, take two pieces of 1" diameter rebar and place through the lifting loops on each side of the sack to facilitate the lifting of the Silt Sack.
5. To empty the Silt Sack, place the unit where the contents will be collected. Place the rebar through the lift straps and lift. This will lift the bottom and empty the contents. Clean out and rinse. Return the Silt Sack to its original shape and place back in the basin.
6. Silt Sacks are reusable. Once the construction cycle is complete, remove the Silt Sack from the basin and clean. Silt Sacks should be stored out of sunlight until next use.

Section 4: Perimeter Control

Erosion Eel

Definition
A temporary sediment barrier used to prevent sediment from leaving the site

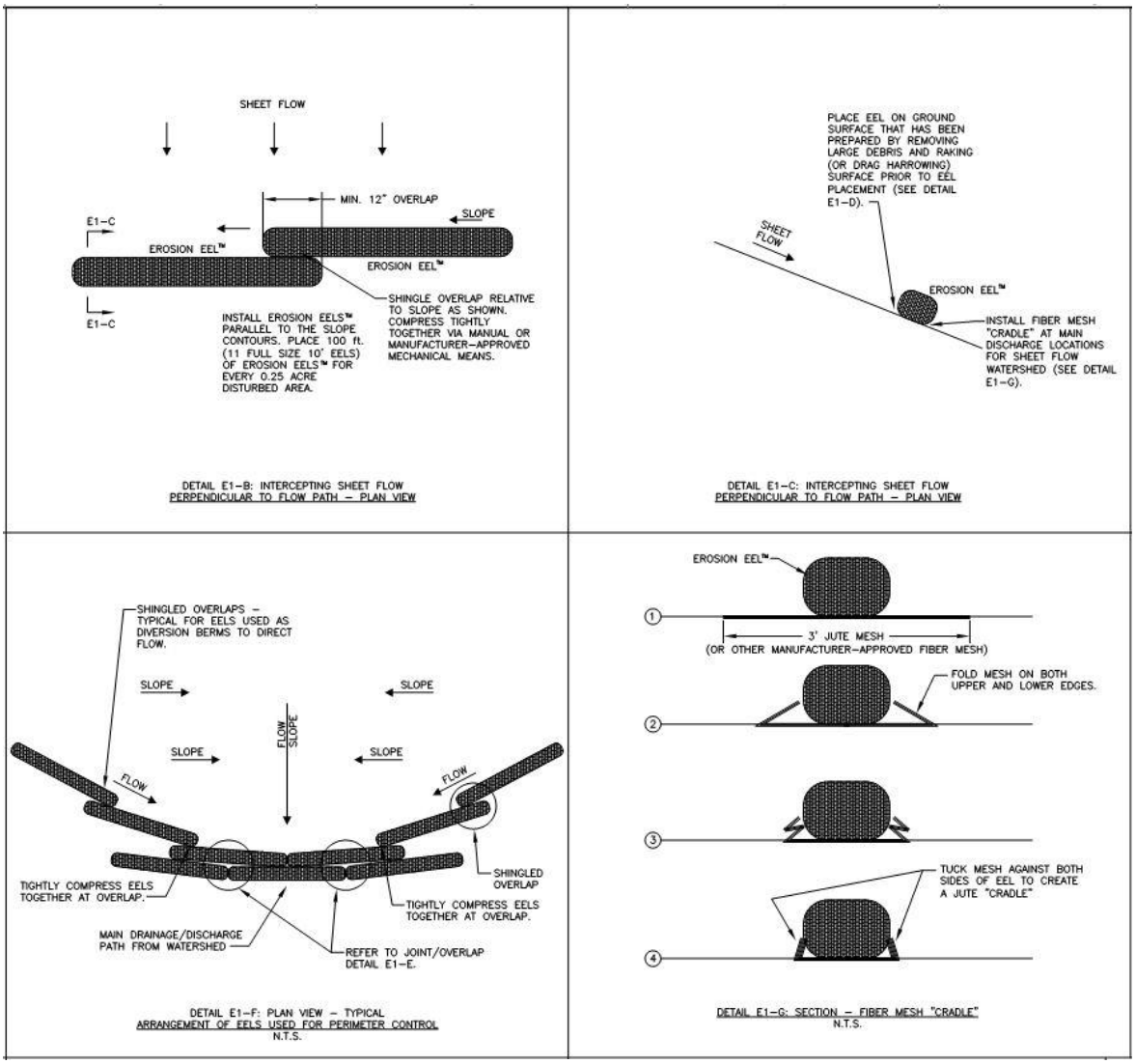
Purpose
1. To intercept and detain small amounts of sediment from disturbed areas during construction operations in order to prevent sediment from leaving the site.
2. To decrease the velocity of sheet flows and low-to-moderate level channel flows.

Conditions Where Practice Applies
1. Below disturbed areas where erosion would occur in the form of sheet and rill erosion
2. Where the size of the drainage area is no more than one quarter acre per 100 feet of Erosion Eels length; the maximum slope behind the barrier is 100 feet; and the maximum gradient behind the barrier is 50 percent (2:1).

Planning and Considerations
1. Erosion Eels can be placed at the top, on the face, or at the toe of slopes to intercept runoff, reduce flow velocity, releasing the runoff as sheet flow, and provide reduction/removal of suspended solids from the runoff.
2. Erosion Eels shall be installed along ground contour, at the toe of slopes, at an angle to the contour to direct flow as a diversion berm, in a ditch as a check dam to help reduce suspended solids loading and retain sediment, or as a general filter for any disturbed soil area.
3. No trenching is required for installation of Erosion Eels.

Design Criteria
1. The size of the drainage area should be no more than one quarter acre per 100 feet of Erosion Eels.
2. See spacing recommendations chart included below for slope percentages.

Construction Specifications
1. Prepare bed for Eel installation by removing any large debris including rocks, soil clods, and woody vegetation (greater that 1 inch in size). Erosion eels can also be placed over paved surfaces including concrete and asphalt with no surface preparation required.
2. Rake bed area with a hand rake or by drag harrow.
3. All surfaces shall be uniformly and well-compacted for maximum seating and stability of the Eels in place.
4. Do not place Eel directly over rills and gullies until area has been hand excavated and raked to provide a level bedding surface in order for the Eels to seat uniformly with no bridging effects that would allow flow to bypass under the bag.
5. Bed the Eels in a jute mesh (or FlocMat) cradle.
6. If more than one Erosion Eel is placed in a row, install the Eels by firmly butting the sewn end against tied end of Eels together to form a butt join. No wraps are required around the joint locations.
7. Eels shall be installed where the handles will be positioned at the very top of the bag.



Spacing Recommendations for the Erosion Eel™ for Perimeter Controls and Intercepting Sheet Flow on Slopes

slope(%)	single eel spacing (ft)	*Stacked Dual eel spacing (ft)
0.5	300	N/A
1	200	N/A
2	160	N/A
3	80	N/A
4	50	N/A
5	40	N/A
6	35	N/A
8	30	N/A
10	25	N/A
15	17	N/A
20	12	25
25	7	15
33	N/A	10
50	N/A	6

* DUAL STACK REFERS TO TWO EELS STACKED ATOP ONE ANOTHER AND STABILIZED WITH T–POSTS. SEE DETAIL E2–E ON SHEET E–2.

Maintenance/Inspections

1. Structures shall be inspected after each runoff producing rain event and repairs shall be made as needed. Any required repairs shall be made immediately.
2. Sediment shall be removed when sediment and debris accumulation affects the performance of the devices. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.